What is claimed is:

Sub B'

1. A method of preparing a pharmaceutical composition for stimulating T cell immune response to nonimmunogenic or low immunogenic diseased cells, comprising the steps of:

(a) providing a plurality of an autologous target diseased cell;

(b) treating said target diseased cell to increase the levels of one or more primary and costimulatory T cell activation molecules in said target diseased cell;

(c) providing a plurality of a bridge molecule comprising one or more binding sites for one or more costimulatory molecules on the surface of T cells in said patient mammal;

(d) attaching said bridge molecule to said target diseased cell; and

(e) thereafter collecting a pharmaceutically effective amount of said target diseased cell with said bridge molecule attached thereto; wherein said steps (c) and (d) are performed either before or after said step (b).

2. The method of claim 1, wherein said collecting in step (e) comprises the step of removing said bridge molecule not attached to said target diseased cell.

Sub B2

3. A method of preparing a therapeutic vaccine for treating a host having nonimmunogenic or low immunogenic diseased cells, comprising the steps of:

(a) providing a plurality of an autologous target diseased cell;

(b) treating said target diseased cell to increase the levels of one or more primary and costimulatory T cell activation molecules in said target diseased cell;

(c) providing a plurality of a bridge molecule comprising one or more binding sites for one or more costimulatory molecules on the surface of T cells in said patient mammal;

(d) attaching said bridge molecule to said target diseased cell; and

(e) thereafter collecting a pharmaceutically effective amount of said target diseased cell with said bridge molecule attached thereto; wherein said steps (c) and (d) are performed either before or after said step (b).

4. The method of claim 1, wherein said collecting in step (e) comprises the step of removing said bridge molecule not attached to said target diseased cell

5. A method of preparing a pharmaceutical composition for stimulating T cell immune response to nonimmunogenic or low immunogenic diseased cells, comprising the steps of:

(a) providing a plurality of an antigen presenting cell;

(b) expressing one or more antigens from said diseased cells in said antigen presenting cell;

(c) providing a plurality of a bridge molecule comprising one or more binding sites for one or more costimulatory molecules on the surface of T cells in said patient mammal;

(d) attaching said bridge molecule to said antigen presenting cell; and

(e) thereafter collecting a pharmaceutically effective amount of said antigen presenting cell with said bridge molecule attached thereto; wherein said steps (c) and (d) are performed either before or after said step (b).

6. An immunogenic composition useful for treating a patient mammal having diseased cells, comprising:

a pharmaceutically effective amount of an isolated autologous target diseased cell which expresses one or more primary and costimulatory T cell activation molecules at a level higher than that in said diseased cells in said patient mammal; and

a pharmaceutically effective amount of a bridge molecule capable of stimulating T cell activation comprising one or more binding sites for one or more costimulatory molecules on the surface of T cells in said patient mammal, wherein said bridge molecule is attached to said target diseased cell and said immunogenic composition is substantially free of said bridge molecule not attached to said isolated autologous target diseased cell.

7. A method of treating a human patient having a tumor, comprising the steps of:

providing at or around the site of a solid tumor in said patient, a pharmaceutically effective amount of one or more cytokines to increase the levels of one or more primary and costimulatory T cell activation molecules in the tumor cells; and

providing at or around the site of said solid tumor in said patient, a pharmaceutically effective amount of a bridge molecule which comprises one or more binding sites for one or

more costimulatory molecules on the surface of T cells in said patient and one or more binding sites for one or more antigens on the surface of the tumor cells, wherein said one or more cytokines and said bridge molecule induces the human patient to generate a T cell immune response against said solid tumor.

8. The method of claim 7, further comprising surgically debulking the solid tumor before providing said one or more cytokines or said bridge molecule.

9. The method of claim 7, wherein said cytokines and bridge molecule are provided to said site of said solid tumor by injection through a needle.

10. A pharmaceutical composition for treating a human patient having a tumor comprising:

a pharmaceutically effective amount of a cytokine capable of increasing the level of one or more primary and costimulatory T cell activation molecules in tumor cells of said patient;

a pharmaceutically effective amount of a bridge molecule capable of stimulating T cell activation comprising a binding site for an antigen on the surface of said tumor cells and a binding site for a costimulatory molecule on the surface of T cells; and

a pharmaceutically acceptable carrier.

11. A kit for use in treating a solid tumor in a human patient, comprising the pharmaceutical composition of claim 10 in a sterile vial.

12. An immunogenic composition useful for treating a patient mammal having diseased cells, comprising:

a pharmaceutically effective amount of an isolated or enriched antigen presenting cell which presents one or more antigens of said diseased cells in the MHC class I or MHC class II complex of said antigen presenting cell; and

a pharmaceutically effective amount of a bridge molecule capable of stimulating T cell activation comprising one or more binding sites for one or more costimulatory molecules

on the surface of T cells in said patient mammal, wherein said bridge molecule is attached to said antigen presenting cell.

13. The immunogenic composition of claim 12, wherein said antigen presenting cell is selected from the group consisting of dendritic cells, macrophages, and B cells.

14. The immunogenic composition of claim 12, wherein said antigen presenting cell is fused with a diseased cell from said patient mammal.

15. The immunogenic composition of claim 12, wherein said antigen presenting cell is pulsed with peptide antigens of said diseased cells.

16. The immunogenic composition of claim 12, wherein said antigen presenting cell is transfected with a nucleic acid capable of expressing said one or more antigens of said diseased cells or their precursors.

17. A method of *in vitro* generation of cytotoxic T lymphocytes against diseased cells in a patient mammal, comprising the steps of:

bringing T lymphocytes into contact with a plurality of an autologous target diseased cell which (a) expresses one or more primary and costimulatory T cell activation molecules at a level higher than that in said diseased cells in said patient mammal, and (b) having attached thereto a bridge molecule capable of stimulating T cell activation comprising one or more binding sites for one or more costimulatory molecules on the surface of T cells;

incubating said T lymphocytes and said plurality of said autologous target diseased cell under conditions suitable for T cell proliferation for a sufficient period of time; and

collecting $CD8^+$ T lymphocytes from said incubation.

18. A method of *in vitro* generation of cytotoxic T lymphocytes against diseased cells in a patient mammal, comprising the steps of:

bringing T lymphocytes into contact with a plurality of an antigen presenting cell which (a) presents one or more antigens of said diseased cells in the MHC class I or MHC

class II complex of said antigen presenting cell, and (b) having attached thereto a bridge molecule capable of stimulating T cell activation comprising one or more binding sites for one or more costimulatory molecules on the surface of T cells;

incubating said T lymphocytes and said plurality of said antigen presenting cell under conditions suitable for T cell proliferation for a sufficient period of time; and

collecting $CD8^+$ T lymphocytes from said incubation.

19. A method of treating a human patient having a tumor, comprising the steps of:

providing at or around the site of a solid tumor in said patient, a pharmaceutically effective amount of a first bridge molecule which comprises one or more binding sites for a first costimulatory molecule on the surface of T cells in said patient and one or more binding sites for a first antigen on the surface of the tumor cells; and

providing at or around the site of said solid tumor in said patient, a pharmaceutically effective amount of a second bridge molecule which comprises one or more binding sites for a second costimulatory molecule on the surface of T cells in said patient and one or more binding sites for a second antigen on the surface of the tumor cells, wherein said first and second bridge molecules induce the human patient to generate a T cell immune response against said solid tumor.

20. The method of claim 19, further comprising surgically debulking the solid tumor before providing said bridge molecules.

21. The method of claim 19, wherein bridge molecules are provided to said site of said solid tumor by injection through a needle.

22. The method of claim 19, wherein said first and second costimulatory molecules on the surface of T cells are selected from the group consisting of CD3, CD28 and 4-1BB.